Centers for Construction Safety and Health

The National Institute for Occupational Safety and Health (NIOSH) of the Centers for Disease Control and Prevention (CDC) announces the availability of fiscal year 2004 funds for cooperative agreement (U50) applications from single institutions or consortia of institutions to establish one or more Centers for Construction Safety and Health (Construction Centers). The purposes of the Construction Centers are to conduct exploratory, prevention/intervention, and translation projects that address priority construction safety and health problems and provide a national focus for construction health and safety issues. A key role for Construction Centers will be their leadership role in translational activities and research. Through this integrated approach to knowledge development and translation, Construction Centers are intended to have a significant and measurable impact on construction health and safety.

The mission of NIOSH is to help ensure safe and healthful working conditions for working men and women by providing research, information, and training in the field of occupational safety and health. NIOSH provides national and world leadership to prevent work-related illness, injury, disability, and death by gathering information, conducting scientific research, and translating the knowledge gained into products and services. One of the strategic goals is the conduct of a focused program of research to reduce injuries and illnesses among workers in high-priority areas and high-risk sectors, including mining, agriculture, construction, and health care. In 1996, the National Occupational Research Agenda (http://www.cdc.gov/niosh/nora/) was created to guide NIOSH. During the development of the agenda, the importance of sector-specific research, including construction, was emphasized. The panel noted that sector-focused research has had much success and continues to hold great promise for gathering and translating knowledge and information into prevention. The Healthy People 2010 agenda, accessible at http://www.healthypeople.gov/, includes national objectives for high-risk sectors, such as a 30% reduction goal for work-related injuries and deaths among construction workers by 2010.

This request for applications (RFA) builds upon an existing NIOSH program on construction safety and health that began in 1990. This program has developed a national infrastructure to address issues affecting workers in this industry. The program includes intramural and extramural research projects as well as collaborative surveillance activities with state health departments. The reduction in traumatic injury rates among construction workers since 1990 suggests that the program has had some impact. A compendium of NIOSH-supported construction research can be found on the NIOSH website at http://www.cdc.gov/niosh/homepage.html.

The health and safety issues in the construction sector are complex and evolving. Thus, there is a need for an integrated approach to the health and safety issues facing this sector, and the Construction Centers are intended to address problems through a coordinated and integrated mix of exploratory, prevention/intervention, and translation projects. The goal of the Construction Center program is to have a significant and measurable impact on construction safety and health.

This initiative is intended to assemble a cross-disciplinary, multi-institutional group to address the important issues in construction safety and health in a focused manner. To accomplish this objective, it is envisioned that a Construction Center would 1) conduct hypothesis-driven exploratory research related to occupational safety and health of construction workers; 2) develop, implement, and evaluate model programs for the prevention of illness and injury among construction workers; and 3) develop, implement, and evaluate translation projects for the adoption of new and existing knowledge into construction settings.

The emphasis of the Construction Centers should be on addressing priority occupational health and safety issues using a multidisciplinary approach. The NIOSH Construction Steering Committee has identified a number of priority topics in emerging areas of interest where research will most likely make a difference. These NIOSH-identified topics can be grouped into three categories:

1) Health and injury outcome topics that target leading types of fatal and nonfatal traumatic injuries in construction; low back injuries and other cumulative work-related musculoskeletal disorders among construction workers; and occupational illness topics that focus on respiratory disease and hearing loss. Respiratory disease for this purpose includes airway disease, asthma, chronic obstructive lung disease, and silicosis.

2) Chemical and physical exposure topics with special emphasis on vibration, asphalt fumes, lead, and dust particles.

3) Approach and sector topics that target the following groups and issues within construction: a) small and self-employed contractors; b) special subpopulations at risk within construction such as Hispanic workers, day laborers, young workers, and aging workers; c) the role of design as a primary prevention tool for addressing construction hazards; d) addressing work organization in construction and improving understanding of how it affects health and safety; e) working with building owners and clients to promote and evaluate construction best practices; and f) leveraging promising approaches from related high-risk sectors such as agriculture and mining into construction.

Other topics relevant to construction health and safety are also appropriate for this RFA. The significance of a project and relevance to the elimination of hazards in the construction industry must be fully described and developed in the application. Individual projects should identify the types and geographical distribution of the construction issue that will be addressed by a project. In addition, the size and characteristics of the population that will be impacted by the project results should be described.

A Construction Center is expected to have the following components that together address the objectives of a Center: 1) Administrative, Planning, and Outreach Core; 2) multidisciplinary exploratory research projects; 3) prevention/intervention projects; and 4) translation projects. Projects may overlap these arbitrary divisions. For example, an intervention project may also fit as a translation project.

Two types of exploratory, prevention/intervention, and translation projects may be included in the Construction Center, and both types are encouraged: pilot short-term projects (1–2 years, R21 type) and comprehensive projects (up to 5 years, R01 type). To be funded, a Construction Center must have one project, either pilot or comprehensive, for each topic area (exploratory, prevention/intervention, and translation) that is judged to have significant and substantial merit. When appropriate, collaborative research is encouraged between Construction Centers and the NIOSH intramural program.

Pilot research projects are intended to provide Construction Center investigators an opportunity to obtain the preliminary data needed for the submission of a NIOSH/CDC, NIH, EPA, or other peer-reviewed project grant application (R01 type). The maximum project period for a pilot project is 2 years. Follow the instructions for a NIOSH exploratory/developmental (R21) grant (see NIH guide at http://grants.nih.gov/grants/guide/rfa-files/RFA-OH-00-006.html for additional information on R21 applications).

Comprehensive research projects are intended to provide support for fully developed ideas that are ripe for study, and should be consistent with R01 projects that are typically awarded by NIOSH and NIH. The project period for this type of project is usually 3–5 years. These projects will follow the submission guidelines for a R01 application according to the PHS 398 application instructions (see NIH guide at http://grants.nih.gov/grants/guide/pa-files/PA-99-143.html for additional information on R01 applications).

1) *Administrative, Planning, and Outreach Core.* This core supports the administrative infrastructure for the entire program and should not be duplicated within any other components. The responsibilities and activities for this core include 1) appropriate and adequate organization and facilities for activities such as seminars, workshops, reference collection, computer support, etc.; and 2) the principal investigator (center director) should provide a minimum 20% time commitment (direct and in-kind), and each member of the internal advisory committee (one exploratory, prevention/intervention, and translation project investigator) should provide a minimum of 5% time commitment for the Construction Center's administration and coordination.

Support of feasibility projects in the exploratory, prevention/intervention, and translation project areas within the NIOSH Construction Center is considered fundamental to sustaining the quality, breadth, and dynamics of this program. Investigators should include 5–10% of the annual direct cost for these projects. Examples of feasibility projects may include but are not limited to, the following: 1) Provide initial support to develop innovative approaches/lines of investigation in the program areas. 2) Allow exploration of possible innovative new directions representing a significant departure from ongoing funded projects in construction sciences (exploratory, prevention/intervention, and translation). 3) Stimulate investigators from other fields of study to apply their expertise to construction safety and health issues. 4) Develop new mechanisms for external or multicenter collaborative partnerships to address emerging construction safety and health concerns. 5) Provide initial support for a translational activity.

Essential functions of the outreach component of the administrative core include, but are not limited to, coordinating and collaborating with construction researchers, industry stakeholders, construction unions, and other organizations to identify key issues and needs. They could also include ongoing construction communication efforts and convening consensus-development sessions to address complex and/or controversial issues with the aim of preventing construction injuries and illness.

An internal advisory committee is formed from the individual project leaders, one from each type of project, that will assist the principal investigator in making scientific and administrative decisions in the operation of the program. An external advisory committee comprises at least three members who

are recognized leaders in construction health and safety and regional construction experts, and will provide overall guidance and advice to the principal investigator and program investigators on program direction.

2) *Exploratory projects.* Exploratory projects are hypothesis-driven projects focused on improving our understanding of construction issues. They may include but are not limited to projects involving surveillance, etiology, engineering, risk factor characterization, or development of analytical and exposure assessment approaches. They may be lab or field projects that provide the basis for creation or improvement of interventions. Exploratory projects should target priority topics and should be done as a part of multidisciplinary efforts to address important problems and avoid fragmentary efforts. Other topics relevant to the construction environment are also appropriate.

3) *Prevention/intervention projects.* Prevention/intervention studies are for testing promising approaches in actual construction settings. Prevention/intervention projects may include but are not limited to actions taken to eliminate or reduce exposure to safety and health hazards via practices or policies, or projects to demonstrate the value of screening or related approaches to detecting disorders and diseases in early stages. They can also examine the value of larger preventive systems (such as the workers' compensation system) in reducing hazards and adverse outcomes. Prevention/intervention projects examine the utility and impact of new and existing measures in the workplace. They may include but are not limited to combinations of techniques such as control technologies, work practices, tools and materials, personal protective equipment, exposure guidelines and regulations, worker participation programs, contract language, design specifications, and changes in education and training.

These projects should address significant construction problems and involve construction stakeholder input to maximize relevance. The development of strong partnerships with organizations that can facilitate the identification of project needs and culturally appropriate prevention/intervention activities is encouraged. These projects should include the active participation of target populations identified at the state and national level, and include an evaluation plan to determine the efficiency and effectiveness of these techniques and programs.

4) *Translation projects.* Translation projects focus on the translation of extant knowledge (such as peer-reviewed articles) into products or practices that meet construction "customer" needs so as to maximize the impact on industry practices. The principal investigator should view these projects as the tool to move the results from the research environment into the construction industry. As the goal for these projects is the adoption of new/improved knowledge in the construction sector, the principal investigator must include in the project plan how the study will accomplish this goal.

Translation projects may include but are not limited to technology transfer projects or demonstration projects that expand the use of effective interventions by a construction trade or industry group. Projects may address diffuse research issues to improve understanding of what influences construction industry decision makers, workers, contractors, building owners, or others to adopt new practices, tools, and methods to improve safety and health performance. Participatory research projects, where research subjects and researchers work as active co-partners on translation issues, are encouraged. Social marketing projects and other approaches that target important topics such as reducing construction fatalities at the industry, state, or national level are also appropriate.

Intervention/prevention and translation projects should include process and outcome measures. Process measures must be detailed enough to allow for replication in other areas. Outcome measures of interest include, but are not limited to, exposure to injury hazards, knowledge of safety and health hazards, documenting safety and health behavior change, and changes in the incidence of disease, injury, or fatality.

In the development and prioritization of the project topics for the Construction Center, applicants are encouraged to consult with stakeholders (such as construction organizations, construction unions, advisory groups, workers, safety and health professionals, and other interested parties). Construction Centers should include plans to develop linkages and communication with other governmental and nongovernmental agencies involved in construction health and safety, with special emphasis on communications and collaborations with other NIOSH/CDC-sponsored construction health and safety programs.

This RFA will use the NIOSH U-54 award mechanism. The NIOSH U-54 is a cooperative agreement award mechanism. In the cooperative agreement award mechanism, the principal investigator retains the primary responsibility and dominant role for planning, directing, and executing the proposed project, with NIOSH staff being substantially involved as a partner with the principal investigator.

This RFA is a one-time solicitation. Future unsolicited, competing-continuation applications based on this project will compete with all investigator-initiated applications and will be reviewed according to the customary peer-review procedures. The anticipated award date is 1 July 2004.

This RFA uses just-in-time concepts. It does not use the modular budgeting formats. Follow the instructions for a detailed budget research grant application. This program does not require cost sharing as defined in the current NIH Grants Policy Statement at http://grants.nih.gov/grants/policy/nihgps_2001/part_i_1.htm.

NIOSH intends to commit approximately $5 million in fiscal year 2004 to fund one or more new or competing grants in response to this RFA. An applicant may request a project period of up to 5 years and a budget for direct costs of up to $3.6 million per year. The total cost requested should not exceed $5 million. Applications exceeding $5 million in total costs in any year will be considered unresponsive to this RFA and returned without further consideration. Because the nature and scope of the proposed research will vary from application to application, it is anticipated that the size and duration of each award may also vary. Although the financial plans of NIOSH provide for this program, awards pursuant to this RFA are contingent upon the availability of funds and the receipt of a sufficient number of meritorious applications.

In years 2 and 4 of the award cycle, an additional $100,000 will be provided to support a national construction meeting. This meeting will be planned jointly by NIOSH and the successful applicant(s).

There must be a demonstrated commitment of the applicant's institution to support and encourage the Construction Center. Such support could be demonstrated by release time of faculty, capital improvements that will facilitate the program, and/or assistance in the acquisition of scientific equipment and supplies.

The Construction Center's program should be more than a collection of projects, but rather should include a process for the administrative integration and oversight of the projects. The projects should address construction issues in an integrated manner that contributes to the overall focus of the Center. Ideally, a Construction Center will address the entire continuum of a problem from identification/causation through translation. Therefore, under the heading "Overall Description," the principal investigator should clearly describe the theme(s) of the Center, how projects address the Center's theme(s), and how the Center will function as an integrated program rather than simply a collection of projects.

The Construction Center funding mechanism should not be used as a substitute for individual research grant support. It is expected that investigators participating in Construction Centers will have a history of independent project support in addition to the Construction Center support. Generally, funds for renovation of existing facilities or purchase of substantial amounts of equipment will not be allowed. If such requests are made, they must be justified in terms of the critical nature of the equipment/renovations for the success of the overall objectives of the Construction Center cooperative agreement.

The deadline for receipt of letters of intent is 13 March 2004, with 13 April 2004 the deadline for receipt of applications. Although a letter of intent is not required, is not binding, and does not enter into the review of a subsequent application, the information that it contains is used to estimate the potential review workload and plan the review.

Although not a prerequisite for applying, applicants are encouraged to consult with NIOSH program staff concerning the technical and other aspects of preparing the application. Applicants should contact NIOSH program staff (listed in the Inquiries section of the full announcement of this program located at http://grants1.nih.gov/grants/guide/rfa-files/RFA-OH-04-002.html) by phone early in the preparation process. However, applicants should understand that advice given by staff is independent from the review process.

Applications must be prepared using the PHS 398 research grant application instructions and forms (rev. 5/2001). Applications must have a Dun & Bradstreet Data Universal Numbering System (DUNS) number as the universal identifier when applying for federal grants or cooperative agreements. The DUNS number can be obtained by calling 1-866-705-5711 or through the website at http://www.dunandbradstreet.com/. The DUNS number should be entered on line 11 of the face page of the PHS 398 form. The PHS 398 document is available at http://grants.nih.gov/grants/funding/phs398/phs398.html in an interactive format.

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